

Water Quality Registry and Trading Program Conceptual Framework

Final Draft
1/31/2006

By
The World Resources Institute

Table of Contents

I. Introduction	2
II. Online Forms (Publicly Available)	3
A. Notice of Generation	3
B. Notice of Use.....	6
III. Pending Notices (DEQ Access Only)	9
IV. MDEQ Registry Database (DEQ Access Only)	10
A. Completed Notices of Generation	10
B. Generated Credits	15
C. Completed Notices of Use.....	17
D. Purchased Credits	20
V. MDEQ Electronic Bulletin Board (Publicly Available).....	22
A. Completed Notices of Generation	22
B. Proposed Notices of Use	22
C. Completed Notices of Use.....	23
VI. NutrientNet (Managed by WRI, Access for Potential Traders)	24
A. Board of Trade	24
VII. Flow of Trading Operations.....	25

I. Introduction

The Registry for the Kalamazoo River Watershed Phosphorus Trading program is a central database for storing information related to trading activity, including Notices of Generation (NOG) and Notices of Use (NOU), in accordance with the Michigan Water Quality Trading Rules. Although the Registry is currently being developed for the Kalamazoo Phosphorus Trading Program, it will be able to be used for the entire state of Michigan. In addition to the Registry Database, this document describes elements that support the primary function of the Registry Database: online forms for the public to submit notices, secure web pages for the Department of Environmental Quality (DEQ) to approve or reject pending notices, an Electronic Bulletin Board for the public to view completed Notices of Generation and proposed/completed Notices of Use, and *NutrientNet*, a tool that estimates nutrient loadings and provides a Board of Trade for trading DEQ-approved credits.

The World Resources Institute will work with Michigan DEQ to create an easy-to-use, secure web interface for viewing and approving notices submitted by the public and viewing the Registry Database. In addition, public users will have access to the online forms and Electronic Bulletin Board. This software will be created on a platform that is compatible with DEQ's existing technology infrastructure, or, if DEQ prefers, a suitable third-party host will be selected. Support for the Registry by the World Resources Institute will be very limited after the completion of the Kalamazoo Trading Program.

NutrientNet, an online water quality trading tool developed by the World Resources Institute, will also be developed for the Kalamazoo Nutrient Trading Pilot Program. Through *NutrientNet*, users can estimate existing nutrient loads and reductions for both point and non-point sources, and determine the total number of credits generated or needed in order to comply with their permitted limit. Those using *NutrientNet's* calculation tools who wish to participate in trading can download a Notice of Generation or Notice of Use form on the *NutrientNet* website containing pre-filled information already inputted during the calculation portion of the site. The user will then only need to verify the pre-filled information as being correct and submit the Notice electronically to Michigan DEQ. *NutrientNet* will also contain a Board of Trade designed to exchange data with the Electronic Bulletin Board of the Registry. The Board of Trade will allow buyers and sellers to post and respond to offers to buy and sell credits, however the Registry is functional without the use of *NutrientNet's* tools and Board of Trade and DEQ can design a unique Board of Trade to exchange data with the Registry if needed.

II. Online Forms (Publicly Available)

Notice of Generation and Notice of Use forms can be found on Michigan Department of Environmental Quality's water quality trading website and on *NutrientNet*. A Notice submitted to DEQ from *NutrientNet* will be pre-filled with all of the information collected during the credit quantification section of the website, and Responsible Individuals need only to review the information before submittal. Forms obtained from Michigan's water quality trading website will not contain pre-filled information and they need to be filled out by the Responsible Individual.

A. Notice of Generation

The Notice of Generation form includes required elements for the Registry as specified by Michigan trading rule 323.3019(2). Sample Notice of Generation forms for point sources and non point sources are provided below. See the Registry Database section for a detailed description of each field.

Notice of Generation- Point Sources (sample form)

Section 1. General Information

Pollutant: _____

Person (or company)

Name: _____

Street: _____

City, State, Zip: _____

Source

Name: _____

Street: _____

City, State, Zip: _____

County: _____

Watershed HUC Code: _____

Source Type: _____

NPDES Permit # (if applicable): _____

Responsible Individual

Name: _____

Street: _____

City, State, Zip: _____

Phone #: _____ E-mail: _____

Section 2. Controls Implemented

Technology Implemented: _____

Date of Implementation: _____

Credit Generation Duration: _____

Government Cost-Share Received: _____

Government Cost-Share Program(s): _____
Percent Local Match: _____

Section 3. Baseline and Credits Generated per Outfall¹

Outfall Latitude: _____ Outfall Longitude: _____
Baseline: _____ lbs/month _____ lbs/year
Applicable Requirement? _____
Discharge Reduction: _____
Reduced Discharge Level: _____
Water Quality Contribution and Uncertainty: _____
Credits Generated per period: _____

Outfall Latitude: _____ Outfall Longitude: _____
Baseline: _____ lbs/month _____ lbs/year
Applicable Requirement? _____
Discharge Reduction: _____
Reduced Discharge Level: _____
Water Quality Contribution and Uncertainty: _____
Credits Generated per period: _____

Outfall Latitude: _____ Outfall Longitude: _____
Baseline: _____ lbs/month _____ lbs/year
Applicable Requirement? _____
Discharge Reduction: _____
Reduced Discharge Level: _____
Water Quality Contribution and Uncertainty: _____
Credits Generated per period: _____

Outfall Latitude: _____ Outfall Longitude: _____
Baseline: _____ lbs/month _____ lbs/year
Applicable Requirement? _____
Discharge Reduction: _____
Reduced Discharge Level: _____
Water Quality Contribution and Uncertainty: _____
Credits Generated per period: _____

Outfall Latitude: _____ Outfall Longitude: _____
Baseline: _____ lbs/month _____ lbs/year
Applicable Requirement? _____
Discharge Reduction: _____
Reduced Discharge Level: _____
Water Quality Contribution and Uncertainty: _____
Credits Generated per period: _____

I, (Name of Individual), am the Responsible Individual authorized to sign this
Notice of Generation for (Name of Source, Process or Operation). I do hereby

certify that to the best of my knowledge the information in this notice is true, accurate and complete. Further, I certify that the discharge or load reductions are real, surplus and quantifiable and will be generated by the date and for the period of time specified in this notice. To the best of my knowledge, these discharge or load reductions have not and are not now being used as credits.

X _____

¹Space is provided at the end of the form for filling out data on additional outfalls, if needed.

Notice of Generation- Non-Point Sources (sample form)

Section 1. General Information

Pollutant: _____

Person (or company)

Name: _____

Street: _____

City, State, Zip: _____

Source

Name: _____

Street: _____

City, State, Zip: _____

County: _____

Section: _____ Range: _____

Township: _____

Latitude (*optional*)¹: _____ Longitude (*optional*)¹: _____

Watershed HUC Code: _____

Source Type: _____

NPDES Permit # (if applicable): _____

Responsible Individual

Name: _____

Street: _____

City, State, Zip: _____

Phone #: _____ E-mail: _____

Section 2. Baseline

Baseline: _____ lbs/month _____ lbs/year

Applicable Requirement? _____

Load Allocation Amount: _____

Method of Existing Load Measurement: _____

City, State, Zip: _____
County: _____
Watershed HUC Code: _____
Source Type: _____
NPDES Permit # (if applicable): _____

Responsible Individual

Name: _____
Street: _____
City, State, Zip: _____
Phone #: _____ E-mail: _____

Section 2. Discharge and Credits per Outfall¹

Latitude: _____ Longitude: _____
Discharge Limit? lbs/mo _____ lbs/yr _____
Method of Measurement: _____
Number of Credits Used: _____
Allowed Discharge: _____
Effective Date of Credit Use: _____
Duration of Credit Use: _____
Notice of Generation ID: _____

Latitude: _____ Longitude: _____
Discharge Limit? lbs/mo _____ lbs/yr _____
Method of Measurement: _____
Number of Credits Used: _____
Allowed Discharge: _____
Effective Date of Credit Use: _____
Duration of Credit Use: _____
Notice of Generation ID: _____

Latitude: _____ Longitude: _____
Discharge Limit? lbs/mo _____ lbs/yr _____
Method of Measurement: _____
Number of Credits Used: _____
Allowed Discharge: _____
Effective Date of Credit Use: _____
Duration of Credit Use: _____
Notice of Generation ID: _____

Latitude: _____ Longitude: _____
Discharge Limit? lbs/mo _____ lbs/yr _____
Method of Measurement: _____
Number of Credits Used: _____
Allowed Discharge: _____
Effective Date of Credit Use: _____

Township: _____
 Latitude (optional)¹: _____ Longitude (optional)¹: _____
 Watershed HUC Code: _____
 Type: _____
 NPDES Permit # (if applicable): _____

Responsible Individual
 Name: _____
 Street: _____
 City, State, Zip: _____
 Phone #: _____ E-mail: _____

Section 2. Load
 Load Allocation Amount? lbs/mo _____ lbs/yr _____
 Method of Measurement: _____

Section 3. Total Credits
 Allowed Discharge: _____
 Total Purchased Credits: _____

I, (Name of Individual) , am the Responsible Individual authorized to sign this Notice of Use for (Name of Source, Process or Operation) . I do hereby certify that to the best of my knowledge the information in this notice is true, accurate and complete and that the source, process or operation for which this notice is being submitted shall be operated in compliance with all applicable requirements and the conditions and requirements for the use of credits under Act 451 and Part 30 Water Quality Trading Rules promulgated thereunder.

X _____

¹Latitude and Longitude of source do not need to be completed if Section, Township and Range are provided.

III. Pending Notices (DEQ Access Only)

Once a Notice of Generation or Use form is submitted to Michigan DEQ, they have 30 days to determine whether data is complete and in compliance. DEQ will be able to login to a secure area for reviewing and approving these pending Notices of Generation and Use. Data fields in Pending Notices will be similar to those described in the Registry database described in the following section. Approved Notices will be transmitted to the Registry Database. See the Flow of Trading Operations section for a more detailed account of the steps involved in the trading program.

IV. MDEQ Registry Database (DEQ Access Only)

A. Completed Notices of Generation

The Notice of Generation data tables include required elements for the Registry as specified by Michigan trading rule 323.3019(2). Notice of Generation data elements stored in the Registry are organized below depending on whether the generator is a point or non-point source. Example Notice of Generation forms for both point and non-point sources can be found in the Online Forms section above. Information from these forms will populate the Registry data fields below.

Completed Notices of Generation – Registry Data Fields for Point Sources

Point Source Notice of Generation data elements for the registry can be divided into four distinct categories of data:

General: Information on the date in which the Notice was submitted and approved, NOG ID and pollutant to be traded.

Person: Contact information for the Person.

Source: Contact information, location, and description of the Source.

Responsible Individual: Contact information for the Responsible Individual.

Controls Implemented: Describes the method used to generate reductions, whether government cost-share was received for the project, and the period in which reductions occur.

Baseline and Credits Generated per Outfall: Data fields in this section are completed for each outfall location, and sources with more than 1 outfall location will list required data elements for each outfall. This section contains information on the baseline for the pollutant of interest, the pollutant limits or requirements that apply to the outfall, the number of credits generated per outfall, and how generated credits are calculated.

Total Credits: Displays the total generated credits for the source by adding credits generated from each outfall location, and provides a link to the Generated Credits table described in Section B below.

Field	Notes	Publicly Available
General		
NOG ID	Notice of Generation ID. A 4-digit number unique to each Notice in the Registry.	Yes
Date Submitted	Date the NOG was submitted.	Yes
Date Approved	Latest date the NOG was approved by MDEQ.	Yes
Pollutant	Pollutant that will be traded.	Yes
Person		
Name of Person	The owner of the credits.	No
Street		No
City		No

State		No
Zip		No
Source		
Source Name	The name of the source, process or operation that will be generating credits.	Yes
Street		Yes
City		Yes
State		Yes
Zip		Yes
County		Yes
Watershed Name		Yes
Watershed ID	8-digit HUC code	Yes
Source Type	Examples: Wastewater Treatment Plant, Concentrated Animal Feeding Operation (CAFO)	Yes
NPDES ID	if applicable	Yes
Responsible Individual		
Name of Responsible Individual	Persons that have permission to approve source information as accurate and complete, and enter information into the Notice of Use and Notice of Generation forms.	Yes
Street		Yes
City		Yes
State		Yes
Zip		Yes
Telephone Number		Yes
Email Address	If Applicable	Yes
Controls Implemented		
Technology Implemented		Yes
Technology Implementation Date	Beginning date in which credits are generated.	Yes
Credit Generation Duration	Estimated lifespan of nutrient reduction technology, or period for which practice will be sustained and credits generated.	Yes
Government Cost Share Received	Yes/no	No
Government Cost Share program(s)	Ex: EQIP, CRP, CREP, GRP, etc...	No
Percent Local Match	1-(percent of government cost share received)	No
Baseline and Credits Generated per Outfall		
Latitude	Location of outfall	Yes
Longitude	Location of outfall	Yes
Baseline	lbs/yr or lbs/mo; Lists either the TMDL	Yes

	wasteload allocation, NPDES permit limit or existing discharge, whichever is most protective of the watershed.	
Applicable Requirement	Describes Discharge Limit field; Either “TMDL Discharge Allocation,” “NPDES Permitted Limit,” or “N/A” if Baseline is existing discharge.	Yes
Discharge Reduction	Pollutants reduced (lbs/yr or lbs/mo, dependent on discharge limit) from implementing nutrient reduction technology.	Yes
Reduced Discharge Level	Pollutant discharge (lbs/yr or lbs/mo, dependent on baseline) after nutrient reduction technology is implemented; must be complied with during the time reductions are made to generate credits. (Baseline) - (Discharge Reduction)	Yes
Water Quality Contribution and Uncertainty	Uncertainty and retirement ratios applied to generated pounds of reductions.	Yes
Credits Generated per Period	(Discharge Reduction) * (Water Quality Contribution and Uncertainty Ratio). The number of credits generated per period, per outfall.	Yes
Total Credits		
Total Generated Credits	(Sum of Credits Generated per Period of all outfalls) * (Credit Generation Duration); Provides a link to Generated Credits table, described in Section B below.	Yes

Completed Notices of Generation – Registry Data Fields for Non-Point Sources

Non-Point Source Notice of Generation data elements for the Registry can be divided into four distinct categories of data:

General: Information on the date in which the Notice was submitted and approved, NOG ID and pollutant to be traded.

Person: Contact information for the Person.

Source: Contact information, location, and description of the Source.

Responsible Individual: Contact information for the Responsible Individual.

Baseline: Contains information on the baseline for the pollutant of interest and the pollutant limits or requirements that apply to the source.

Practice Implemented: Describes the method used to generate reductions, whether government cost-share was received for the project, and the period in which reductions occur.

Total Credits: Displays the number of credits generated per period, the total number of credits generated, and provides a link to the Generated Credits table, described in Section B below.

Field	Notes	Publicly Available
General		
NOG ID	Notice of Generation ID. A 4-digit number unique to each Notice in the registry.	Yes
Date Submitted	Date the NOG was submitted.	Yes
Date Approved	Latest date the NOG was approved by MDEQ.	Yes
Pollutant	Pollutant that will be traded.	Yes
Person		
Name of Person	The owner of the credits.	No
Street		No
City		No
State		No
Zip		No
Source		
Source Name	The name of the source, process or operation that will be generating credits.	Yes
Street		Yes
City		Yes
State		Yes
Zip		Yes
County		Yes
Section	Lat/Longs may be substituted for section, town and range information	Yes
Range	Lat/Longs may be substituted for section, town and range information	Yes
Township	Lat/Longs may be substituted for section, town and range information	Yes
Latitude	May use in lieu of section, town and range data	Yes
Longitude	May use in lieu of section, town and range data	Yes
Watershed Name		Yes
Watershed ID	8-digit HUC code	Yes
Source Type	Examples: Pasture, Farming Field, Animal Concentration Area, Stormwater System.	Yes
NPDES ID	if applicable	Yes
Responsible Individual		
Name of Responsible Individual	Persons that have permission to approve source information as accurate and complete, and enter information into the Notice of Use and Notice of Generation forms.	Yes

Street		Yes
City		Yes
State		Yes
Zip		Yes
Telephone Number		Yes
Email Address	If Applicable	Yes
Baseline		
Baseline	lbs/yr or lbs/mo; The baseline is either an existing load measurement or the TMDL load allocation/NPDES permit limit, whichever is most protective of the watershed.	Yes
Applicable Requirement	Either "TMDL Load Allocation," "NPDES Permitted Limit," or "N/A" if Baseline is existing load.	Yes
Load Allocation Amount	Percentage adjustment taken from existing load, if applicable.	Yes
Method of Existing Load Measurement	Options: Direct, methods set fourth by Michigan trading rules, or MDEQ approved alternative such as that used on <i>NutrientNet</i> .	Yes
Practice Implemented		
Practice Implemented	Best Management Practice implemented that generates credits.	Yes
Date of Implementation		Yes
Load Reduction	Pollutants reduced (lbs/yr or lbs/mo, dependent on baseline measurement) from implementing BMP or nutrient reduction technology.	Yes
Reduced Load Level	Pollutant discharge or load (lbs/yr or lbs/mo, dependent on baseline measurement) after BMP or nutrient reduction technology implemented; must be complied with during the time reductions are made to generate credits. (Baseline) – (Load Reduction)	Yes
Load Reduction Duration	Estimated lifespan of structural BMP, or period for which practice will be sustained and credits generated.	Yes
Government Cost Share Received	Yes/no	No
Government Cost Share program(s)	Ex: EQIP, CRP, CREP, GRP, etc...	No
Percent Local Match	1-(percent of government cost share received)	No
Total Credits		
Water Quality Contribution and	Uncertainty and retirement ratios applied to	Yes

Uncertainty	generated pounds of reductions	
Credits Generated per Period	(Load Reduction) * (Water Quality Contribution and Uncertainty Ratio)	Yes
Total Generated Credits	(Credits Generated per Period) * (Credit Generation Duration); Provides a link to Generated Credits table, described in Section B below.	Yes

B. Generated Credits

In order to display information on total credits generated through the implementation of a multi-period best management practice or nutrient reduction technology, serial numbers will be assigned to each credit generated. Each credit is available to the market at a specific time interval depending on the lifespan of the BMP or nutrient reduction technology. The number of credits sharing the same effective and expiration date depend on the number of credits generated per period. The vintage of the credits are reflected by the credit effective date and expiration date. A credit effective period of five years is used in the example below to follow Trading Rule 18, which states that credits may be used or traded for a period of five years after the credit has been generated. In the Registry, the Notice of Generation table is linked to the Generated Credits table via the NOG ID. This table will not be included in the Notice of Generation form submitted to MDEQ, and will only be used for tracking purposes in the Registry.

Generated Credits – Registry Data Fields

Field	Notes	Publicly Available
NOG ID	Notice of Generation ID. A 4-digit number unique to each Notice in the Registry.	Yes
Credit Serial Number	Contains the 4-digit NOG ID, followed by a 3-digit number unique to each credit generated.	Yes
Credit Effective Date	Starting date credits will be generated.	Yes
Credit Expiration Date	Date that credits will expire.	Yes
NOU ID	Links to the Notice of Use that is using the credits, if applicable. The NOU ID is a 4-digit number unique to each Notice in the Registry.	Yes

Below is an example of what the Generated Credits table will look like in the Registry for a best management practice or nutrient reduction technology in place for 7 years and generating 10 credits per year. Clicking on NOG ID provides a direct link back to the Notice of Generation, and clicking on NOU ID will display the Notice of Use that is associated with the purchased credits:

Listing of Generated Credits (Sample View)

<u>0032</u> (NOG ID)			
Credit Serial Number	Credit Effective Date	Credit Expiration Date	NOU ID, if applicable
0032001-0032010	10/23/2005	10/22/2010	1547
0032011-0032020	10/23/2006	10/22/2011	3241
0032021-0032030	10/23/2007	10/22/2012	
0032031-0032040	10/23/2008	10/22/2013	
0032041-0032050	10/23/2009	10/22/2014	
0032051-0032060	10/23/2010	10/22/2015	
0032061-0032070	10/23/2011	10/22/2016	

C. Completed Notices of Use

The Notice of Use data table includes required elements for the Registry as specified by Michigan rule 323.3020(1). Notice of Use data elements stored in the Registry are organized below depending on whether the user is a point or non-point source. Example Notice of Use forms for point and non-point sources can be found in the Online Forms section above. Information from these forms will populate the Registry data fields below.

Completed Notices of Use – Registry Data Fields for Point Sources

Notice of Use data elements for point sources contained in the Registry can be divided into three distinct categories of data:

General: Information on the date in which the Notice was submitted and approved, NOU ID and pollutant to be traded.

Person: Contact information for the Person.

Source: Contact information, location, and description of the Source.

Responsible Individual: Contact information for the Responsible Individual.

Discharge and Credits per Outfall: Data fields in this section are completed for each outfall location, and sources with more than 1 outfall location will list required data elements for each outfall. This section contains information on the buyers' discharge limit for the outfall, the pollutant limits or requirements that apply to the outfall, and the credits used for each outfall.

Total Credits: details the total number of credits purchased by adding credits used for each outfall location. A link is also provided to the Purchased Credits table, described in Section B below.

Field	Notes	Publicly Available
General		
NOU ID	Notice of Use ID. A 4-digit number unique to each Notice in the Registry.	Yes
Date Submitted	Date the NOU was submitted.	Yes
Date Approved	Latest date the NOU was approved by MDEQ.	Yes
Pollutant	Pollutant that will be traded.	Yes
Person		
Name of Person	The purchaser of the credits.	No
Street		No
City		No
State		No
Zip		No
Source		
Source Name	The name of the source, process or operation that will be using credits.	Yes

Street		Yes
City		Yes
State		Yes
Zip		Yes
County		Yes
Watershed Name		Yes
Watershed ID	8-digit HUC code	Yes
Source Type	Examples: Wastewater Treatment Plant, Concentrated Animal Feed Operation(CAFO).	Yes
NPDES ID	If applicable	Yes
Responsible Individual		
Name of Responsible Individual	Persons that have permission to approve source information as accurate and complete, and enter information into the Notice of Use and Notice of Generation forms.	Yes
Street		Yes
City		Yes
State		Yes
Zip		Yes
Telephone Number		Yes
Email Address	If Applicable	Yes
Discharge and Credits per Outfall		
Latitude	location of outfall	Yes
Longitude	location of outfall	Yes
Discharge Limit	lbs/yr or lbs/mo; NPDES discharge limit or TMDL wasteload allocation for the outfall.	Yes
Method of Measurement	Options: Direct measurement or an MDEQ approved alternative	Yes
Number of Credits Used	The number of credits used for the outfall.	Yes
Allowed Discharge	lbs/yr or lbs/mo, dependent on the Discharge Limit. The actual discharge level that must be complied with during the use of the credits. (Discharge Limit) + (Credits Used)	Yes
Total Credits		
Total Purchased Credits	Sum of credits used for each outfall location); Provides a link to the Purchased Credits table, described in Section B below.	Yes

Completed Notices of Use – Registry Data Fields for Non-Point Sources

Notice of Use data elements for non-point sources contained in the Registry can be divided into three distinct categories of data:

General: Information on the date in which the Notice was submitted and approved, NOU ID and pollutant to be traded.

Person: Contact information for the Person.

Source: Contact information, location, and description of the Source.

Responsible Individual: Contact information for the Responsible Individual.

Load: data detailing the buyers' load for the pollutant of interest, and the pollutant limits or requirements that apply to the source.

Total Credits: details the total number of credits that are purchased and provides a link to the Purchased Credits table, described in Section B below.

Field	Notes	Publicly Available
General		
NOU ID	Notice of Use ID. A 4-digit number unique to each Notice in the Registry.	Yes
Date Submitted	Date the NOU was submitted.	Yes
Date Approved	Latest date the NOU was approved by MDEQ.	Yes
Pollutant	Pollutant that will be traded.	Yes
Person		
Name of Person	The purchaser of the credits.	No
Street		No
City		No
State		No
Zip		No
Source		
Source Name	The name of the source, process or operation that will be using credits.	Yes
Street		Yes
City		Yes
State		Yes
Zip		Yes
County		Yes
Section	Lat/Longs may be substituted for section, town and range information	Yes
Range	Lat/Longs may be substituted for section, town and range information	Yes
Township	Lat/Longs may be substituted for section, town and range information	Yes
Latitude	May use in lieu of section, town and range data	Yes
Longitude	May use in lieu of section, town and range data	Yes
Watershed Name		Yes
Watershed ID	8-digit HUC code	Yes

Source Type	Examples: Pasture, Farming Field, Animal Concentration Area, Stormwater System.	Yes
NPDES ID	If applicable	Yes
Responsible Individual		
Name of Responsible Individual	Persons that have permission to approve source information as accurate and complete, and enter information into the Notice of Use and Notice of Generation forms.	Yes
Street		Yes
City		Yes
State		Yes
Zip		Yes
Telephone Number		Yes
Email Address	If Applicable	Yes
Load		
Load Allocation Amount	lbs/yr or lbs/mo; NPDES permitted loading limit.	Yes
Method of Measurement	Options: Direct, NPS methods set fourth by Michigan trading rules, or an MDEQ approved alternative such as <i>NutrientNet's</i> estimation tools.	Yes
Total Credits		
Allowed Discharge	lbs/yr or lbs/mo, dependent on the Load Allocation Amount. The actual discharge level that must be complied with during the use of the credits. (Load Allocation Amount) + (Total Purchased Credits)	Yes
Total Purchased Credits	Sum of total credits to be purchased; Provides a link to Purchased Credits table, described below.	Yes

D. Purchased Credits

All credits purchased are listed by their unique serial number and NOG number to track credit effective and expiration dates of each credit and the Notice of Generation associated with each group of credits. A credit effective period of five years is used in the example below to follow Trading Rule 18, which states that credits may be used or traded for a period of five years after the credit has been generated. In the Registry, the Notice of Use table is linked to the Purchased Credits table via the NOU ID.

Purchased Credits – Registry Data Fields

Field	Notes	Publicly Available
-------	-------	--------------------

NOU ID	Notice of Use ID. A 4-digit number unique to each Notice in the Registry.	Yes
Credit Serial Number	Contains the 4-digit NOG ID, followed by a 3-digit number unique to each credit generated.	Yes
NOG ID	Links to the Notice of Generation that is generating the credits. The NOG ID is a 4-digit number unique to each Notice in the Registry.	Yes
Credit Effective Date	Starting date credits will be used and counted towards the discharge limit.	Yes
Credit Expiration Date	Date that credits will expire.	Yes

Below is an example of what the Purchased Credits table will look like in the Registry for a Person purchasing credits from a number of sources. Clicking on the NOG ID will direct you to the Notice of Generation associated with whose credits. Clicking on NOU ID will direct you back to the Notice of Use:

Listing of Purchased Credits (Sample View)

1598 (NOU ID)			
Credit Serial Number	NOG ID	Credit Effective Date	Credit Expiration Date
5634035-5634050	5634	10/23/2005	10/22/2010
6943011-6943045	6943	2/16/2005	2/15/2010
3095001-3095032	3095	4/05/2005	4/04/2010

V. MDEQ Electronic Bulletin Board (Publicly Available)

All information in the Electronic Bulletin Board is publicly available through MDEQ's nutrient trading website and will contain three distinct tables: Completed Notices of Generation, Proposed Notices of Use and Completed Notices of Use.

A. Completed Notices of Generation

The Completed Notices of Generation table lists all approved Notices of Generation with links to the public NOG information. Once a Notice of Generation is approved by Michigan DEQ and the information is sent to the registry, all of the public information contained in the Notice will be posted in the Completed Notice of Generation table. This table informs the public of all credits that have been generated in a watershed, whether they have been posted for sale or not.

Listing of Completed Notices of Generation (Sample View)

NOG ID (linked to public NOG info)	Source Name	Total Credits Generated	Pollutant	Watershed	Responsible Individual	Date Approved
0014	Rolling Hills Farm	784	Phosphorus	Kalamazoo	Joe Smith	3/15/2005
0020	Kalamazoo WWTP	1008	Phosphorus	Kalamazoo	Ryan Braeburn	8/10/2005
0021	Green Valley Farm	32	Phosphorus	Kalamazoo	Bank	9/20/2005
0028	Strup Family Farm	155	Phosphorus	Kalamazoo	Bank	10/10/2005
0030	Jones Family Farm	35	Phosphorus	Kalamazoo	Derek Jones	10/15/2005

B. Proposed Notices of Use

This table contains links to public information from Notices of Use that have been submitted and are pending approval from MDEQ. To access more detailed information concerning the use of the credits, the user would click on the Notice of Use link to view all public details of the proposed trade.

Listing of Proposed Notices of Use (Sample View)

NOU ID (linked to public NOU info)	Source Name	Total Credits Purchased	Pollutant	Watershed	NOU Submittal Date
0145	Battle Creek WWTP	865	Phosphorus	Kalamazoo	9/27/2005

0210	Allegan WWTP	132	Phosphorus	Kalamazoo	12/22/2005
----------------------	-----------------	-----	------------	-----------	------------

C. Completed Notices of Use

This table contains links to public information from Notices of Use that have been approved for trading by the MDEQ and lists all completed trades that have occurred. To access more detailed information concerning the use of the credits, the user would click on the Notice of Use link to view all public details of the trade.

Listing of Completed Notices of Use (Sample View)

NOU ID (linked to public NOU info)	Source Name	Total Credits Purchased	Pollutant	Watershed	NOU Approval Date
0547	Texas WWTP	1000	Phosphorus	Kalamazoo	7/15/2005
0623	Portage WWTP	3000	Phosphorus	Kalamazoo	10/21/2005

VI. NutrientNet (Managed by WRI, Access for Potential Traders)

NutrientNet is a separate tool developed for the Kalamazoo Nutrient Trading Pilot Program and will be used in conjunction with the Registry and Electronic Bulletin Board. The Registry is still a functional tool without *NutrientNet*, and if Michigan DEQ decides to expand water quality trading to watersheds other than the Kalamazoo, *NutrientNet* does not have to be used. *NutrientNet* will provide an online method for quantifying nutrient loadings and total credits generated or needed, and these calculation methods will be approved by DEQ and be in compliance with the Michigan Trading Rules. In addition, Notice of Use and Notice of Generation forms will be provided on the website as well as on the trading and Registry website. A notice submitted to DEQ from *NutrientNet* will be pre-filled with all of the information collected during the credit quantification section of the website, and responsible individuals need only to review the information before submittal. Another aspect of *NutrientNet* is the Board of Trade, described below.

A. Board of Trade

Description: The Board of Trade will consist of a listing of all credits available to be purchased along with any publicly viewable information from the Notice of Generation that is associated with the credits. Although the Board of Trade is accessible through *NutrientNet*, a hyperlink will be provided from the Electronic Bulletin Board to the Board of Trade so that users can seamlessly view all publicly available information pertaining to the Kalamazoo trading program. Once a Notice of Generation has been reviewed and accepted by DEQ, completed Notices of Generation will immediately be posted on the Electronic Bulletin Board. Credit owners will post their credits on the Board of Trade when the best management practice or technology has been put in place and credits are available to be sold.

Listing of Board of Trade (Sample View)

Credits Available	Nutrient	Watershed	Asking Credit price (\$/credit)	Responsible Individual	NOG ID (linked to public NOG info)	Email Seller
100	Phosphorus	Kalamazoo	\$20	Joe Smith	1465	Email Seller
784	Phosphorus	Kalamazoo	\$10	Ryan Braeburn	0512	Email Seller
32	Phosphorus	Kalamazoo	\$15	Mark Green	2347	Email Seller
5,000	Phosphorus	Kalamazoo	\$12	Bank	N/A- NOGs will be provided before a NOU is filled out.	Email Seller

VII. Flow of Trading Operations

The flow of trading operations described below correlates with steps outlined in Figure 1.

Generating and Selling Credits

1. Existing loads and credits generated by BMPs are quantified using *NutrientNet*, if necessary. Those wishing to sell credits fill out a Notice of Generation form found on either the *NutrientNet* website or the trading program website. Data is approved by the generator's Responsible Individual and is then sent electronically or by certified mail to Michigan DEQ. Notices of Generation sent electronically to DEQ will be housed on the "Pending Notices" section of the trading website, which is only viewable by the registry authority (Michigan DEQ). The registry authority views submitted Notices of Generation on this website and determines completeness of the data within 30 days.
2. The Notice of Generation is either accepted or declined, and DEQ provides a written response to the Responsible Individual. If the Notice of Generation is determined to be complete, DEQ must submit the notice into the registry within 5 business days. If the Notice of Generation form was submitted to the department electronically, then the information can be submitted into the Registry electronically.
3. Once data is entered into the registry, publicly available Notice of Generation information is immediately posted on the Electronic Bulletin Board.
4. Credits are posted for sale on the Board of Trade accessible via *NutrientNet*. The Board of Trade and Electronic Bulletin Board will be hyperlinked to each other for seamless access.

Buying Credits

- a. Existing loads and number of credits needed to meet NPDES permits are quantified using *NutrientNet*, if necessary. Potential buyers review the Board of Trade on *NutrientNet* to view the credits posted for sale, and/or the completed Notices of Generation on the Electronic Bulletin Board section accessible from the trading program website to see which sources have generated credits. The buyer contacts the generating Responsible Individual and arranges the sale, and the Responsible Individual supplies the buyer with the relevant Notice of Generation information needed in the Notice of Use.
- b. Once an agreement on the sale of credits is reached, the buyer fills out a Notice of Use form found on the *NutrientNet* website or trading program website. Data is approved by the source's Responsible Individual and is then sent electronically or by certified mail to Michigan DEQ. Notices of Use sent electronically to DEQ will be housed on the Pending Notices section of the trading website, which is only viewable by the Registry authority (Michigan DEQ). The Registry authority views submitted Notices of Use on this website to determine completeness of the data within 30 days.
- c. The Proposed Notice of Use is posted to the Registry and Electronic Bulletin Board within 3 business days of submittal. If the Notice of Use form was submitted to the department electronically, then the information can be submitted to the Registry electronically.

- d. Once the 30 day review period is over, the proposed Notice of Use is either accepted or declined and DEQ provides a written response to the Responsible Individual. If the Notice of Use is determined to be complete, DEQ must update the status of the Notice from “proposed” to “complete” in the Registry within 5 business days. If the Notice of Use form was submitted to the department electronically, then the information can be updated in the registry electronically.
- e. Once the status has been changed in the Registry, publicly available Notice of Use information is immediately posted in the Completed Notices of Use section of the Electronic Bulletin Board.

Reports

The reports section will provide Michigan DEQ with credit generation and usage statistics necessary for program evaluation and reporting as stated in Rule 24 of Michigan’s Water Quality Trading Rules. These reports can be exported to Excel or a similar database program.

Figure 1: Flow of Operations



